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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,128	10/14/2004	Eivind Berg	21649.26545	7879

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EXAMINER	
HUGHES, SCOTT A	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/501,128	BERG, EIVIND	
	Examiner	Art Unit	
	Scott A. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/20/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-32* is/are rejected.

7)☒ Claim(s) *13-31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/9/2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

It is noted that on 11/5/2004 the applicant submitted the letter from Stephen G. Kunin, Deputy Commissioner for Patent Examination Policy, stating that Information Disclosure Statements may be filed without copies of US patents and published applications. Applicant also submitted a letter on 11/5/2004 asking that the examiner consider the references cited on the attached PTO/SB/08A. However, the examiner could not find a PTO/SB/08A form submitted with the Information Disclosure Statement papers. The examiner noted that references were cited in the Search Report of the parent PCT application, but could not find these references cited on a separate sheet such as a PTO/SB/08A form. The references in the search report will be considered by the examiner, but will not be made of official record unless submitted in a proper IDS form.

The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other

information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper."

Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the sensor arrangement "wherein the cylindrical structure is a ring layout of poles, with or without spaces" (as cited in claim 15) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: The disclosure contains multiple grammatical and spelling errors that make it difficult to understand. An example of some of the errors from amended page 4 is given below:

The first paragraph of page 4 contains the word "dos" when it is mean to read "does." The second paragraph of page 4 contains the words "contain mapping value." It is unclear if this should be "mapping value" as stated or the plural "mapping values." The third paragraph of page 4 contains the words "base don" when it should read "based on."

Appropriate correction of the entire specification for these spelling and grammatical errors is required.

Claim Objections

Claims 13 and 16-17 are objected to because of the following informalities:

Claim 13 recites the limitation "cylindrical structure that is adopted to penetrate" in the second to last line of the claim. The limitation "adopted to" should read "adapted to." Appropriate correction is required.

Claims 16 and 17 are objected to for containing the limitations "the at least a first." It is unclear if this is meant to be "the first" or "at least a first." Appropriate correction is required.

Claims 14-31 are objected to because of the following informalities: The claims depend from claim numbers that were cancelled by an amendment. Claims 14-31 claim dependence from claims 1, 3, 4, 5, 6, 10, 11, and 12. Claim 29 depends from claim 16, but it is unclear if this is meant to be new claim 16 or if the dependence should be changed to follow the changes made in the dependence of the other claims. Appropriate correction is required. For the purposes of this action, the claims will be examined as though their dependence starts at new claim 13 (dependence on claim 1 changed to new claim 13, dependence on claim 3 to new claim 15, etc.).

Claims 23 and 25-31 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In their current form, claims 23 and 27 appear to contain the same limitations as claim 19. Claims 25 and 28 appear to contain the same limitations as claim 20. Claim

26 appears to contain the same limitation as claim 18. Claims 29 and 30 appear to contain the same limitation as claim 21. Claim 31 appears to add the same limitation as claim 16. Since the dependence of the claims is unclear as noted above, it is unclear as to whether claims 23 and 25-31 further limit a parent claim or if they add the same limitation as claims 16 and 18-21 to a parent claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21, 24, and 29-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17, 21 and 29-30 recite the limitation "the at least a first hydrophone" or "the hydrophone." There is insufficient antecedent basis for this limitation in the claims as there is no definition or limitation of a hydrophone in the preceding claims from which they could depend. Claim 21 claims dependence from claim 6 (cancelled). This dependence is assumed to be from claim 18 (the sixth new claim). There is no antecedent basis for a hydrophone in claim 18, or in the claims from which claim 18 could depend. The dependence of claim 29 is also uncertain for the reasons stated above, and there is no mention of a hydrophone in claim 16, from which claim 29 depends. Claim 30 is stated to depend from claim 1. It is assumed that this is meant to be claim 13, in which there is no mention of a hydrophone.

Claim 24 recites the limitation "the skirt." There is insufficient antecedent basis for this limitation in the claim. Claim 24 is stated to depend from claim 11 (cancelled). Following a renumbering of the dependence of the claims corresponding to the newly added claims, this would have claim 24 depend from claims 23, 22, 16, 15, and 1. There is no mention of a skirt in any of these claims. There is mention of a skirt in new claim 14, but this claim does not fit with the claimed dependence of claim 24.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13, 14, 16, 22, and 31-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Vandenbroucke (6625083).

With regard to claim 13, Vandenbroucke discloses a sensor arrangement for use in seismic investigation of geological formations below the seabed (abstract). Vandenbroucke discloses a plurality of sensor nodes 1 (Fig. 2), which are positioned for deployment on the seabed (Figs. 2-8) to acquire pressure waves and shear waves from the geological formations and to transfer seismic data to a surface receiver (Column 3,

Lines 43-60), wherein each sensor node comprises a substantially cylindrical structure 2 (Fig. 1) that is adapted to penetrate into the seabed and at least a first geophone that is connected to the structure (Column 3; Column 1, Line 50 to Column 2, Line 55).

With regard to claim 14, Vandenbroucke discloses that the cylindrical structure is a skirt (Column 3, Lines 43-60). The disclosure by Vandenbroucke of a streamlined body is read as being a skirt since it is a cylindrical shape made of solid material.

With regard to claim 16, Vandenbroucke discloses a housing 3 that encloses the at least first geophone and is positioned at the top of the cylindrical structure (Column 3, Lines 43-60).

With regard to claim 22, Vandenbroucke discloses that the housing encloses three geophones positioned at 90-degree angles in relation to each other and a tilt meter (Column 3). Vandenbroucke discloses three-dimensional type geophones, and this is known in the art as being three geophones positioned at 90-degree angles to each other.

With regard to claim 31, Vandenbroucke discloses a housing 3 that encloses at least one geophone and is positioned at the top of the cylindrical structure (Column 3).

With regard to claim 32, Vandenbroucke discloses a method for operating a seismic mapping system comprises the steps of deploying a plurality of sensor nodes on a seabed and recording seismic data and data concerning system behavior by telemetry (abstract; Column 2, Line 35 to Column 3, Line 6; Column 3, Line 44 to Column 4, Line 36).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Donoho.

With regard to claim 13, Donoho discloses a sensor arrangement for use in seismic investigation of geological formations below the seabed (abstract). Donoho discloses a plurality of sensor nodes (Fig. 1) (Column 10, Lines 55-65), which are positioned for deployment on the seabed to acquire pressure waves and shear waves from the geological formations and to transfer seismic data to a surface receiver (abstract; Column 4, Column 6, Lines 11-44; Column 10, Lines 20-35), wherein each sensor node comprises a substantially cylindrical structure that is adapted to penetrate into the seabed and at least a first geophone 140 that is connected to the structure (Figs. 1-2).

With regard to claim 14, Donoho discloses that the cylindrical structure is a skirt (Figs. 1-2). Donoho shows a coupling plate 143 that is a solid material in the form of a cylinder that helps to couple the device to the bottom. Therefore, the device of Donoho is read as having a cylindrical skirt.

With regard to claim 15, Donoho discloses that the cylindrical structure is a ring layout of poles 107, with or without spaces (Figs. 1-2).

With regard to claims 16 and 31, Donoho discloses a housing 141 that encloses the at least first geophone and is positioned at the top of the cylindrical structure 143 (Fig. 2) (Column 7, Line 60 to Column 8, 36).

With regard to claim 17, Donoho discloses an open cage that encloses a hydrophone and is positioned above the housing (Fig. 2) (Column 8).

With regard to claims 18 and 26, Donoho discloses a grip 171 that is fixed at the top for use with a ROV ROT. The grip 171 of Donoho is capable of being used with an ROV for grabbing and placing on the bottom or retrieving. The statement "for use with a ROV ROT" is an intended use statement and does not add any structural limitations to the invention. The "for use with" clauses are essentially method limitations or statements or intended or desired use. Thus, this claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647
>
> Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.
>
> Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

With regard to claim 19, 23, and 27, Donoho discloses that the sensor node is connected to a control unit through an acoustic insulated cable (Column 7, Line 60 to Column 8, Line 10).

With regard to claim 20, 25, and 28, Donoho discloses that the cylindrical structure is manufactured of aluminum (Column 6).

With regard to claims 21, 29, and 30, Donoho discloses a hydrophone 155 placed 10cm above the geophone 140 (Fig. 2).

With regard to claim 22, Donoho discloses that the housing encloses three geophones positioned at 90-degree angles in relation to each other and a tilt meter (Column 7, Lines 55-57). Donoho discloses a compass, which is read as being a tilt meter since it gives a reading of the orientation of the device.

With regard to claim 24, Donoho discloses that the cable is led into the sensor node through the upper part of the skirt (Fig. 2, Column 8).

With regard to claim 25, Donoho discloses that the cylindrical structure is manufactured of aluminum (Column 6).

With regard to claim 32, Donoho discloses a method for operating a seismic mapping system comprises the steps of deploying a plurality of sensor nodes on a seabed and recording seismic data and data concerning system behavior by telemetry (abstract; Column 10, Lines 55-65; Columns 6-8).

Claims 13-14, and 16-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Svenning (5442590).

With regard to claim 13, Svenning discloses a sensor arrangement for use in seismic investigation of geological formations below the seabed (Fig. 1). Svenning discloses a plurality of sensor nodes 1 (Figs. 1-3), which are positioned for deployment on the seabed to acquire pressure waves and shear waves from the geological formations and to transfer seismic data to a surface receiver 31 (abstract), wherein each sensor node comprises a substantially cylindrical structure 1,6 that is adapted to penetrate into the seabed and at least a first geophone 15-17 that is connected to the structure (Columns 2-3).

With regard to claim 14, Svenning discloses that the cylinder is a skirt (abstract; Column 2).

With regard to claims 16 and 31, Svenning discloses a housing 7 that encloses the at least first geophone and is positioned at the top of the cylindrical structure (Fig. 2).

With regard to claim 17, Svenning discloses an open cage that encloses a hydrophone 23 and is positioned above the housing (Fig. 2). Svenning discloses that the hydrophone is in the top part of the main cylinder by the cap portion. The housing of the hydrophone is read as an open cage.

With regard to claims 18 and 26, Svenning discloses a grip 8 that is fixed at the top for use with a ROV ROT (Fig. 3) (abstract; Column 3, lines 44-54).

With regard to claims 19, 23, and 27, Svenning discloses that the sensor node is connected to a control unit through an acoustic insulated cable 3,4 (Column 1, Lines 63-68).

With regard to claims 20, 25, and 28, Svenning discloses that the cylindrical structure is manufactured of aluminum (Column 2, Lines 30-35).

With regard to claims 21 and 29-30, Svenning discloses a hydrophone placed 10cm above the geophone (Fig. 2) (Column 3, Lines 15-30).

With regard to claim 22, Svenning discloses that the housing encloses three geophones positioned at 90-degree angles in relation to each other and a tilt meter 18, 19 (Column 2, Lines 35-55).

With regard to claim 24, Svenning discloses that the cable 3 is led into the sensor node through the upper part of the skirt (Figs. 1, 2) (Column 2).

With regard to claim 32, Svenning discloses a method for operating a seismic mapping system comprises the steps of deploying a plurality of sensor nodes on a seabed and recording seismic data and data concerning system behavior by telemetry (abstract; Column 2, Lines 35-55; Columns 3-4).

Claims 13-14, 16-21, and 26-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Pavey.

With regard to claim 13, Pavey discloses a sensor arrangement for use in seismic investigation of geological formations below the seabed (Column 1; Column 4, Lines 10-20). Pavey discloses a plurality of sensor nodes (Column 1, Column 4, Lines 10-20), which are positioned for deployment on the seabed to acquire pressure waves and shear waves from the geological formations and to transfer seismic data to a surface receiver (abstract), wherein each sensor node comprises a substantially

cylindrical structure 11 (Column 2) (Figs. 1-3) that is adapted to penetrate into the seabed and at least a first geophone that is connected to the structure (Column 1).

With regard to claim 14, Pavey discloses that the cylindrical structure is a skirt Column 2, Lines 24-35).

With regard to claims 16 and 31, Pavey discloses a housing that encloses the at least first geophone and is positioned at the top of the cylindrical structure (Column 2, Lines 24-44).

With regard to claim 17, Pavey discloses an open cage 12 that encloses a hydrophone 25 and is positioned above the housing (Fig. 1). Pavey discloses perforations in the shield by the hydrophone that allow for communication between the hydrophone and the surrounding water (Column 2).

With regard to claims 18 and 26, Pavey discloses a grip 19 that is fixed at the top for use with a ROV ROT (Columns 1-3).

With regard to claims 19 and 27, Pavey discloses that the sensor node is connected to a control unit through an acoustic insulated cable 18 (Fig. 3) (Column 2, Lines 44-53; Column 3, Lines 45-75).

With regard to claims 21 and 29-30, Pavey discloses a hydrophone 25 placed 10cm above the geophone 15 (Fig. 1) (Column 2).

With regard to claim 32, Pavey discloses a method for operating a seismic mapping system comprises the steps of deploying a plurality of sensor nodes on a seabed and recording seismic data and data concerning system behavior by telemetry (abstract; Column 1, Lines 25-72; Column s 3-4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavey.

With regard to claims 20 and 28, Pavey discloses that the cylindrical structure is manufactured of metal (Column 2, Lines 24-32). Pavey discloses that the structure is metallic, and it would have been obvious to use aluminum as the metallic element since it is light and can be used underwater.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH

Mark Hellner

Primary Examiner

AU 3663